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(54) **MATERIALS AND METHODS FOR RAPID AND SPECIFIC DETECTION OF COCAINE**

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(58) **Field of Classification Search**

None

See application file for complete search history.

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(57)

ABSTRACT

The invention pertains to a rapid and specific aptamer-based method for one-step cocaine detection with minimal reagent requirements based on an aptamer sensor that reports the presence of cocaine via the displacement and unquenching of a bound fluorophore molecule. In certain embodiments, the invention provides novel aptamers, which have reduced background fluorescence, bind a fluorophore molecule tightly, and show an increased signal gain in the presence of cocaine.

18 Claims, 21 Drawing Sheets